

Controlling Aquatic Organisms and Taste and Odor:

Troublesome Aquatic Organisms and Control:

Common Name	Genus	Problem	Copper Sulfate Dosage (mg/L) ¹ and ²	Chlorine (mg/L) Dosage*
Diatoms	<i>Asterionella</i> , <i>Synedra</i> , <i>Tabellaria</i>	Odor (aromatic to fishy)	0.1-0.5	0.5-1.0
Diatom	<i>Fragillaria</i> , <i>Navicula</i>	High turbidity	0.1-0.3	n/a
Diatom	<i>Melosira</i>	High turbidity	0.2	2.0
Green	<i>Eudonina</i> , <i>Pandorina</i>	Odor (fishy)	2-10	n/a
Green	<i>Volvox</i>	Odor (fishy)	0.25	0.3-1.0
Green	<i>Chara</i> , <i>Cladophora</i>	High turbidity (scum)	0.1-0.5	n/a
Green	<i>Coelastrum</i> , <i>Spirogyra</i>	High turbidity (scum)	0.1-0.3	1.0-1.5
Blue-green	<i>Anabaena</i> , <i>Aphanizomenon</i>	Odor (moldy, grassy, vile)	0.1-0.5	0.5-1.0
Blue-green	<i>Clathrocystis</i> , <i>Coelosphaerium</i>	Odor (grassy, vile)	0.1-0.3	0.5-1.0
Blue-green	<i>Oscillatoria</i>	High turbidity	0.2-0.5	1.1
Golden or Yellow-brown	<i>Cryptomonas</i>	Odor (aromatic)	0.2-0.5	n/a
Golden or Yellow-brown	<i>Dinobryon</i>	Odor (aromatic to fishy)	0.2	0.3-1.0
Golden or Yellow-brown	<i>Mallomonas</i>	Odor (aromatic)	0.2-0.5	n/a
Golden or Yellow-brown	<i>Synura</i>	Taste (cucumber)	0.1-0.3	0.3-1.0
Golden or Yellow-brown	<i>Urogljenopsis</i>	Odor (fishy) and taste (oily)	0.1-0.2	0.3-1.0
Dinoflagellates	<i>Ceratium</i>	Odor (fishy, vile)	0.2-0.3	0.3-1.0
Dinoflagellates	<i>Glenodinium</i>	Odor (fishy)	0.2-0.5	n/a
Dinoflagellates	<i>Peridinium</i>	Odor (fishy)	0.5-2.0	n/a
Filamentous bacteria	<i>Beggiatoa</i> (sulfur)	Odor (decayed)	5.0	n/a
Filamentous bacteria	<i>Crenothrix</i> (iron)	Odor (decayed)	0.3-0.5	0.5
Crustacea	<i>Cyclops</i>	Visible	n/a	1.0-3.0
Crustacea	<i>Daphnia</i>	Visible	2.0	1.0-3.0
Miscellaneous	<i>Chironomus</i> (bloodworm)	Visible	n/a	15-50
Miscellaneous	<i>Craspedacusta</i> (jellyfish)	Visible	0.3	n/a

¹ Jar tests are recommended to determine correct dosage based on ambient water conditions, pH, temperature and suspended solids.

² Potassium permanganate is an alternative to copper sulfate with effective dosage ranging from 0.4 to 4 m/L but the cost is often prohibitive and it develops a purple color that is difficult to remove if overdosed.

Achieve taste and odor control through three methods:

1. prevention (at the source) by mixing reservoir water using mechanical mixers or pumps, controlling aquatic organisms (refer to the Table below) and through water pollution control.
2. removal of taste and odor problems at the treatment plant through aeration, oxidation (usually the most practical and effective method using potassium permanganate) or adsorbtion.
3. control of taste and odor within the distribution system.

Iron bacteria (*Crenothrix* and *Leptothrix*) that proliferate in water mains or water with a high sulfate content will cause taste and odor problems in the distribution system. Correct these two problems through operation and maintenance. Periodic flushing, cleanout assemblies and removal of dead-end mains will minimize or eliminate taste and odor problems in the distribution system. Furthermore, maintaining a chlorine residual and using anticorrosion measures will help. Suggestions for anticorrosion include adjusting the pH or use of a corrosion inhibitor.

[Refer to technical documents from the AWWA on curbing taste and odor, distribution system maintenance and aquatic organism control](#)